



Toothache and Lymphoma in the Mandible: Case Report of a Diagnostic Challenge and Management

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Abstract

This case report discusses a case of a patient with past history of Non-Hodgkin's Lymphoma (NHL) who developed pain and paresthesia in the oral cavity associated with a tooth. The close collaboration between the oral medicine providers and the oncologists, lead to the diagnosis of a relapse of NHL, not only in the oral cavity but other body sites. The management of the case with chemotherapy leads to the elimination of the pain and paresthesia in the mouth and the resolution of all relapsed lesions without the need to perform a dental extraction of the involved tooth.

Keywords: Lymphoma; Paresthesia symptoms; DLBCL; NHL

Introduction

Lymphomas are hematological malignancies subdivided into HL (Hodgkin's Lymphomas) and NHL (Non-Hodgkin's Lymphomas). They are more specifically classified into subtypes of HL or NHL according to the WHO classification. Hodgkin's lymphoma accounts for about 10% of all lymphomas and the remaining 90% are referred to as non-Hodgkin lymphoma. Non-Hodgkin Lymphoma (NHL) is one of the most common cancers in the United States, accounting for about 4.7% of all cancers [1]. They include Diffuse Large B-Cell Lymphoma (DLBCL), T-cell lymphoma, Burkitt Lymphoma (BL), Natural Killer/T-Cell Lymphoma (NKTCL), marginal zone lymphoma, Plasmablastic Lymphoma (PBL), mantle cell lymphoma, and lymphoblastic lymphoma. The lymphomas developing in the oral and maxillofacial regions are most commonly the HL types and may involve the hard palate, gingiva, tongue, maxilla, mandible, Waldeyer's ring, palatine, and lingual tonsils [2].

Jaw localization of non-Hodgkin's lymphoma is rare [3].

The oral cavity is affected by about 2% of all NHL. There is no gender predilection, and most of the affected patients are between the fourth and eighth decades of life. Clinical and radiographic signs and symptoms are not contributory to the diagnosis. Common oral findings of NHL include swelling of soft tissues on the buccal vestibule and, in some cases, intraosseous lesions with extraosseous growth of soft tissue, pain, and/or paresthesia of the region. Histopathological examination is usually required for the final diagnosis [4].

The present case report discusses a patient referred to the dentist complaining of dental pain and symptoms on the face. After proper evaluation and diagnostic tests, the patient was diagnosed with a diffuse large B-cell lymphoma with intraoral manifestation. The importance of the collaboration between the medical oncologist and the dentist in the diagnosis and management of the patient is discussed.

Case Presentation

A 60 years old male patient, with a diagnosis of Diffuse Large B-Cell Lymphoma (DLBCL) for over 10 years and out of treatment for more than 8 years, developed paresthesia and pain in the jaw. The patient had a dental evaluation with his private dentist that did not reveal any outbreak of infection or changes in the oral cavity. Five weeks later, with the persistence of signs and symptoms, he was referred to the oral medicine department of the Albert Einstein Hospital Cancer Center in Sao Paulo, Brazil by his hematologist for oral evaluation and management. The patient had also been previously examined by a neurologist due to headache and earache complaints. Neurological problems were ruled out and it was suspected that the symptoms were coming from a tooth.

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Figure 1: A digital periapical and panoramic radiographs revealed a fractured endodontic file with root perforation of the left first molar.

The patient had a history of hypertension and was taking an antihypertensive drug. He was afebrile and was a nonsmoker and non-drinker. The intraoral examination revealed a nodular lesion of the same color of the normal oral mucosa at the left premolar region in the mandible. The premolars had pain upon percussion. A digital periapical and panoramic radiographs revealed a fractured endodontic file with root perforation of the left first molar (Figure 1). The rest of the oral mucosa had a normal aspect.

Searching for additional information, imaging studies were performed. MRI study revealed a tissue characterized by hyposignal in T1, enhanced by contrast and diffusion restriction, replacing the bone marrow of the left hemibody of the jaw, affecting the path of the lower left alveolar nerve in this region, with an extension of approximately 3.4 cm. This tissue widened the mental foramen, crossing it and taking the form of lobulated contours, extending to the adjacent myo-adipose planes measuring about 1.0 cm x 0.7 cm in the axial plane. An additional neurographic sequence was performed that demonstrated thickening and alteration of the left alveolar nerve

(from its origin to the mental foramen), the left incisor and the mental nerve. These findings were not specific but allowed us to consider the possible reactivation of the underlying disease (NHL) among the various diagnostic possibilities. The patient presented perineural dissemination in the lower alveolar, incisor and mentonian nerves on the left side of the jaw, like benign neural lesions or peripheral nerve tumors. With the identification of an infiltrative lesion in the jaw, the medical team opted to perform a PET-CT which identified glycolytic hypermetabolism in lymph node, splenic, hepatic lesions, large gastric, enteral, testicular, lumbar and medullary root curvature (with signs of nerve and muscle-adipose infiltration), suggestive of impairment neoplastic (Figure 2).

A biopsy of the hypercaptant liver nodule was performed, aiming for a diagnostic clarification. The histopathological examination confirmed the diagnosis of a relapse of the NHL large cells B.

At this point the patient was started on a chemotherapy regimen with R-Hyper CVAD (Cyclophosphamide, vincristine, doxorubicin, dexamethasone, cytarabine, same and intrathecal methotrexate). After 2 days of therapy the patient experienced complete remission of the painful symptoms in the oral cavity, including the nodule. The patient underwent treatment with 6 cycles of R-CHOP with total remission of the disease. The patient is now being worked-up for autologous stem cell transplantation. The tooth associated with the lesion has been restored without the need for extraction, or root canal therapy.

Discussion

When managing a patient with a complaint of pain in the oral cavity or head and neck region, the initial evaluation by the dentist should include a detailed anamnesis and review of the medical history, a thorough intra and extra-oral examination, complemented by the necessary imaging exams, such as periapical radiographs, panoramic radiographs, and in some cases, CT scans. Panoramic

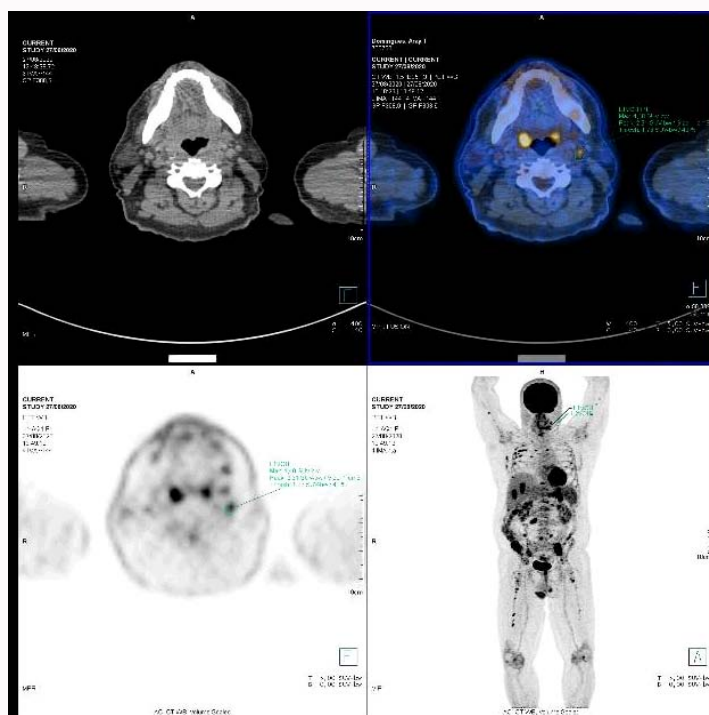


Figure 2: PET-CT which identified glycolytic hypermetabolism in lymph node, splenic, hepatic lesions, large gastric, enteral, testicular, lumbar and medullary root curvature (with signs of nerve and muscle-adipose infiltration), suggestive of impairment neoplastic.

radiographs and CT scans are nonspecific. Therefore, MRI imaging can reveal extension of lesions to soft tissues or muscles. In the present case, all of these procedures were performed to rule out both local and systemic disease processes due to the patient's past history of malignancy. Initially, a complication affecting tooth 36 with indication for extraction was determined (Figure 1). At first, this would be the most logical approach by the dentist in an attempt to resolve the patient's pain. However, knowing that the patient had a history of lymphoproliferative disease and that the signs and symptoms for this disease can be those presented as paresthesia and weight loss, a discussion about the best approach to confirm the diagnosis was discussed with the medical team. That led to additional diagnostic imaging that confirmed not only the oral cavity involvement, but also systemic reactivation of the NHL. The correct differential diagnosis previous to the biopsy was essential for the final diagnosis. In the present case, it prevented an unnecessary surgical approach that could have caused long-term complications such as paresthesia of the alveolar and other nerves, considering the location of the oral lesion.

A possible cause of the initial accumulation of lymphoid tissue seen in the present case (from which the lymphoma arises) within the jaw bones is chronic dental disease. This process may arise from an untreated or inadequately treated tooth or due to periodontal disease. Lesions typically present as asymptomatic slowly progressing, usually non-ulcerated submucosal masses (either with or without a history of signs and symptoms). In such cases, lymphoma should be included in the differential diagnosis, even in the absence of systemic signs and symptoms, especially if the patient has a past history of the malignancy. For instance, most of the lip lymphomas cause no constitutional symptoms. Presence of numbness is another important indicator of possible malignancy within the mandible [5]. This in fact is an important feature of extranodal lymphoma arising from the mandibular alveolus [6].

Although such lesions affecting the mandibular alveolus may be adequately seen by the conventional radiography, those in the maxillary alveolus are not readily visualized. Periapical lymphomas most frequently occur in the mandible and affect more males than females. The most common histopathologic type of periapical lymphoma is diffuse large B cell lymphoma [7]. It is already known that periapical lesions in the presence of unexplained numbness or pain, not associated with a dental problem, should include the possibility of lymphoma in the differential diagnosis [8]. This is also true when in presence of unexplained tooth mobility, with an irregular shaped radiolucency, in patients with a diagnosis of malignant disease. In patients with a diagnosis of malignancy, in need of a tooth extraction or apicoectomy, it is recommended a histopathological examination to exclude a malignant lesion [9]. In the case described, we opted not to perform the dental procedure (extraction of tooth 36) but to procure additional information with imaging exams, especially because of the presence of unexplained paresthesia.

The diagnosis of oral lymphomas can be complicated due to low index of clinical suspicion. Given this condition, incisional biopsy is indicated. Currently, the best option for diagnostic analysis is the immunohistochemistry of the lesion, which distinguishes benign from the malignant lesions, offering the possibility of rigorous sub-classification types of lymphomas. We decided not to perform biopsy as the first choice in this case due to the location of the lesion close to the mental foramen and the risk of permanent paresthesia. This ensued a discussion with the medical team and a decision to do a PET scan. The imaging study allowed for a determination of the best site to take a biopsy in addition to the jaw lesion. The diagnosis of additional sites of active lesions leads to the decision to proceed with a liver biopsy. This shows the importance of team collaboration in the decision-making process between dental professionals and oncologists during the management of cancer patients.

Overall, this case outlines the importance of considering neoplasia in the differential diagnosis of persistent pain and numbness affecting the oral cavity. The early diagnosis can be expected to lead to a marked improvement in overall survival patterns. This case emphasizes the importance of oncologists and oral medicine/oral oncology providers working in collaboration at the hospital setting.

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